

d) Remarks

In response to DETAILED ACTION – Claim Rejections – 35 USC § 112, I will now try to show that when taken together with my underlying patent US 7,206,727 the claims do distinctly claim what I consider to be the subject matter of the invention. Underlying patent US 7,206,727 explains the concept and mathematics of the best method I am aware of for defining railroad track transition curve shapes that have three desirable properties as follows: 1) these shapes minimize transient accelerations of vehicles which in the case of passenger vehicles cause some amount of discomfort; 2) these shapes minimize lateral forces that vehicles apply to the track structure and that cause the track to become misshapen over time; and 3) these shapes are defined by continuous mathematical functions that can achieve not only simple routine type transitions but also more complex transitions that are called for in a minority of cases. Turnout design was somewhat stagnant for a number of years but has attracted some research and design interest in the last decade or so. However, there has so far not been any serious attempt to employ superelevation to improve turnout performance. The present invention applies the principles of Underlying patent US 7,206,727 to turnout design. Benefit from the underlying technology has been demonstrated both in simulations and in field testing. A railroad track engineer skilled in the art can understand both the challenges of and the potential for achieving improved turnout performance with this technology. I believe than anyone skilled in the art will understand what is being claimed in this application. In this instance, skill in the art includes reading the underlying patent and some of the papers that I have published setting forth results from successful testing experience.

In response to DETAILED ACTION – Claim Rejections – 35 USC § 102, I will now try to show that while the Watanabe et al patent cited and my application both deal with concepts for design of railroad track turnouts and both include some form of superelevation in the diverging route of the turnout, the Watanabe et al patent and my application do not have any overlap as regards mechanical details or as regards the specific shape and superelevation of the diverging route. First my application has none of the particular detailed mechanical arrangements described by Watanabe et al, and instead of claiming novelty for any of the four mechanical arrangements that I do cite I claim only their use to achieve the specific shapes covered by my Underlying patent US 7,206,727. Second, Watanabe et al speak about their goal of allowing superelevation (which they refer to by the British term, cant) on the diverging route, but they do not say anything about the form of the superelevation profile or about how it should be related to the curvature of the track on the diverging route of the turnout. In short, I do not claim anything that Watanabe et al claim and they do not claim anything that I claim.

In response to DETAILED ACTION – Conclusion, I will not try to show that Patent US 6,257,494 by Tokuoka et al is not pertinent to my application. I have reviewed the Tokuoka et al patent and find that it deals with steel ties for support of traditional turnouts but with design details aimed at causing the surrounding ballast to grip those ties more effectively in comparison to traditional wood or concrete ties. The Tokuoka et al patent has nothing to do with design of turnouts to allow the diverging route to be superelevated, and my application has nothing to do with designing switch rail ties at all much less designing them so that they are more firmly held in place by ballast. Hence I see no relevance of the Tokuoka et al patent to my application.